AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph beginning on page 8, line 24, as follows:

In one embodiment, the implicit relevance data 204 may be collected for a single interaction, aggregated across all interactions in a given user session of interacting with search results, or further aggregated across all users' interactions with the same search results during their own similar searches. For example, a basic unit of implicit relevance data 204 is an atomic measurement of one user, one query, and one result interaction. There may be several atomic measurements for a given session, such as printing a result, bookmarking the result in a favorites folder, sending the result in an e-mail to some friends, etc. By aggregating the atomic measurements for all users and all queries, the implicit relevance data 204 is a sufficiently large and detailed corpus of data that is an excellent predictor of relevance. In a preferred embodiment, the automated relevance optimization system 200 collects implicit relevance data 204, as described in detail in commonly assigned copending United States Patent Application No. [[_____]] 10/805,873, which is herein incorporated by reference. Other methods of collecting implicit relevance data 204 may be implemented without departing from the scope of the claims that follow, as long as the data is sufficiently large and detailed to be highly predictive of search result relevance.

Please amend the paragraph beginning on page 16, line 3, as follows:

FIGURES 5A-5B are flow diagrams illustrating the logic performed ~~in conjunction with the search engine server 112 and automated relevance optimizer 202 of FIGURES 2 and 3 for~~ by a relevance optimizer method 500 for automating the optimization of search results in a search engine in accordance with an embodiment of the present invention. The search engine server 112 begins at the start block 502 and continues at processing block 504 to generate the

search Web page 106 with search results 110 (FIGURE 1) in accordance with the existing relevance schema database 114. At processing block 506, the automated relevance optimizer process 202 collects the relevance performance data for the search results 110 from various sources, including the implicit relevance data 204, the explicit relevance data 206, the human-judged test data 208, the relevance verification test data 210, and the sample A/B test data 212. In one embodiment, collecting the implicit relevance data 204 may include aggregating the data across a local user's session or across multiple sessions, or even across multiple users where cross-user data is available from the search engine server 112. Alternatively, the implicit relevance data 204 may be already aggregated by the search engine server 112 for use by the automated relevance optimizer process 202. In any event, processing continues at process block 508, where the automated relevance optimizer process 202 compiles the various sources of collected relevance performance data into a measurement of the actual performance of a result or results under consideration, including normalizing the various sources of performance data in accordance with their relative importance. In one embodiment, the relative importance of the various sources is a measure of their value in predicting the relevance of search results, and that value may be predefined by the search engine operator, and further changed from time to time to aid the operator in fine-tuning the automated relevance optimization process. In a preferred embodiment, the value of the implicit relevance data 204 is likely to be higher than other sources of relevance performance data because it may be highly predictive due to the potentially large scale of data collection and rapidity with which the data may be collected.

Please amend the paragraph beginning on page 16, line 29, as follows:

In one embodiment, the automated relevance optimizer ~~process 202~~ <u>method 500</u> continues at process block 510 to obtain the expected relevance data 214 for the search result or

results under consideration. The expected relevance data 214 may be predefined by the search engine operator and changed from time to time to reflect changes in the expected performance of search results over time. In one embodiment, the expected relevance data 214 may have even been changed or otherwise updated by an action 216 generated by a previous iteration of the automated relevance optimizer 202 to reflect any automated changes in expectations.

Please amend the paragraph beginning on page 17, line 7, as follows:

In one embodiment, the automated relevance optimizer ~~process 202~~ method 500 continues at process block 512 to compare the measurement of the actual performance of a result or results under consideration to the expected performance, where the actual performance was determined at process block 508, and the expected performance was determined at process block 510. When the comparison is unfavorable, e.g., the actual performance fall short or substantially short of the expected performance, the search results are underperforming, which may indicate a problem with the relevance of the search results. The automated relevance optimizer process attempts to diagnose the possible cause or causes of the problem. For example, in some cases the result is obsolete and other newer results are now more relevant, as reflected, for example, in the implicit relevance data 204 collected for the results. In other cases, the search term for which the search results were generated is too broad or easily misspelled, and requires the search engine to prompt the user to clarify the terms. Numerous other diagnoses of possible causes of the problem may be made without departing from the scope of the claims that follow.

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Please amend the paragraph beginning on page 17, line 21, as follows:

In FIGURE 5B, the automated relevance optimizer ~~202~~ method 500 continues at decision block 514 to determine whether a problem with the relevance of the search results has been diagnosed. If not, the automated relevance optimizer 202 ends at termination oval 520. Otherwise, processing continues at process block 516, where the automated relevance optimizer 202 determines what adjustment or corrective action 216 (FIGURE 2) to generate in an effort to address the problem. As further illustrated in FIGURE 5, the adjustment or corrective action 216 is applied at block 518. As described earlier, the action 216 may include adjustments to the search engine operation that cause the user to be prompted to clarify or narrow the search term in cases where the problem is related to the search term being too general or easily misspelled. In one embodiment, the action 216 may include a modification, either temporary or permanent, to the relevance schema database 114, or even modifications to the expected relevance data 214. In still another embodiment, the action 216 may comprise one or more modifications to the search results 108 on the search Web page 106 in real time, where the search results 110 that were generated by the search engine 112 are intercepted and reranked, reordered, reformatted, removed, replaced with other results, or otherwise modified in an effort to optimize the search result relevance for the user. Combinations of above-described actions 216 may be employed as well without departing from the scope of the claims that follow.

Please amend the paragraph beginning on page 18, line 8, as follows:

While the presently preferred embodiments of the invention have been illustrated and described, it will be appreciated that various changes may be made therein without departing from the spirit and scope of the invention. For example, as already described, in one embodiment of the present invention, the automated relevance ~~optimization system process 202~~

optimizer method 500 and associated subprocesses for data collection 310, diagnosis 312, and adjustment 314, may be implemented in real time to allow for up-to-the-minute optimizations based on the latest performance data captured by the search engine server 112 and collected by the automated relevance optimizer 202. In another embodiment, the automated relevance ~~optimization system 200~~ optimizer method 500 processes may be implemented in batch mode to allow for data collection of performance data from a variety of sources, including implicit relevance data 204, explicit relevance data 206, human-judged test data, relevance verification test data 210, and sample A/B test data 212, and a combination of automated and manual optimizations of search results. In yet other embodiments, the automated optimization search result relevance ~~system 200~~ optimizer method 500 may be limited in application to consideration of less than all sources of performance data, e.g., limited to the implicit relevance data 204, as well as limited in application to only certain types of actions 216, such as permanent modifications to the relevance schema database 114, real time updates to the relevance schema database 114 or to the search results 110, or any combination thereof.

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